REMARKS/ARGUMENTS

The Examiner has objected to the disclosure for the reason that the inventor of Japanese Publication For Unexamined Patent Application 10-232273 identified in the specification is Kazuhiko et al. and not Tokukaihei. It is noted that "Tokukaihei" does not indicate the inventor's name and is a term used by the Japanese Patent Office before a publication number to indicate when the publication was published and, as such, is part of the publication number. Specifically, Tokukaihei 10-232273 indicates that publication 232273 is a patent application published (Tokukai) in the tenth year of the Heisei era (Hei 10). Accordingly, amendment of the specification should not be necessary. It is noted, however, that if the Examiner believes that some amendment is necessary, he is authorized to do by Examiner's Amendment.

The Examiner has objected to claim 3 for the reasons that "CR" on line 7 is not defined and he cannot ascertain what would be a "slight" voltage fluctuation on line 11. First, it is noted that the recitation of "CR dynamics" in claim 3 refers to "Capacitance-Resistance dynamics". Specifically, on page 20, lines 21-25, the present specification refers to the transient response of Cp, Rp, Cn and Rn as "CR dynamics", where Cp, Rp, Cn and Rn are capacitances and resistances as shown, for example, in Fig. 5 of the drawings. An example of "CR dynamics" in graphical form is shown, for example, by portion "B" in Fig. 9 of the drawings. Accordingly, it appears that the term "CR dynamics" is adequately defined in the specification and should not have to be amended in claim 3.

Second, line 11 of claim 3 has been amended to delete the word "slight" and thus should now be sufficiently definite.

Claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by Kazuhiko et al. (JP 10-232273). For the reasons set forth hereinafter, it requested that the Examiner reconsider and withdraw this rejection.

As set forth in Applicants' specification at page 4, line 2 through page 5, line 17, Kazuhiko et al. fails to disclose the feature of the battery state diagnosing device applying the load to the battery as a current load, as specifically recited in claim 1 and all of the claims depending therefrom. In Kazuhiko et al. a serial load of an impedance element as a voltage load is applied to the battery. Specifically, paragraphs (0072) – (0073) of Kazuhiko et al. disclose that an alternative voltage vB and an alternating current iB are applied to an impedance component 13 (i.e., a voltage load). The transfer function, and indeed the entire invention, disclosed by Kazuhiko et al. is one that is determined for an impedance element (i.e., voltage load) and not for a current load as taught by the present invention and specifically recited in claim 1 and the claims depending therefrom.

According to the method of Kazuhiko et al. in a device for measuring alternating voltage and alternating current of the battery, a voltage source noise (voltage load) with a serial load of an impedance element are serially connected to the battery. This is not an optimal method for extracting battery characteristics because an error of the impedance element directly affects the measurement.

Specifically, in Kazuhiko et al. in obtaining the transfer function of the battery, an impedance is identified by including a series impedance (i.e. transfer function G(s), which is determined from the measured alternating voltage and alternate current, is expressed as a sum of transfer function $H_B(s)$ of the battery and transfer function $H_I(s)$ of the impedance element.)

Accordingly, in order to obtain an actual impedance of the battery, it is necessary to subtract the external impedance from the measured impedance. In Kazuhiko et al. resistance and pure capacitance are used as the impedance element. The resistor causes a problem when there is a temperature change, and the capacitance, by nature, has a large margin of error. Therefore, the errors directly affect accuracy of identification. If measurement is to be performed by directly connecting the voltage source to the battery without using the impedance element, a current value becomes excessively large, and it becomes difficult to control the current. There is also a subordinate problem that it is necessary to switch between the resistor and the capacitor.

It is submitted, therefore, that claim 1 should be allowable over the teachings of Kazuhiko et al. and that dependent claims 2-4 should also be allowable. In view of the allowance of claims 5-12, all of the claims in the present application should now be allowable to Applicants.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

Frank P. Presta
Reg. No. 19,828

FPP:lcb
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100